PERIPHERAL VASCULAR SURGERY

SSG CATES

Terminal Learning Objective

CONDITION: Given the appropriate information

ACTION: Identify the special requirements

for peripheral vascular surgery

STANDARD: IAW cited references.

Related Peripheral Vascular Surgical Terms

CONDITION: Given a list of terms

ACTION: Define those terms related to peripheral vascular surgery

STANDARD: IAW Fuller.

Related Peripheral Vascular Surgical Terms

- **PERIPHERAL VASCUALR SURGERY**-- Encompasses/ includes procedures of the arteries and veins, excluding those in or near the heart.

- **ARTERIOSCLEROSIS**-- Hardening of the arteries, lose their full elasticity.

Related Peripheral Vascular Surgical Terms

- **ARTERIAL PLAQUE**-- A thick, yellow, rubbery material adhering to the lumen of the artery. Made of lipids.

- **ATHEROSCLEROSIS**-- Build up of plaque in an artery.

- **THROMBUS**-- A blood clot that obstructs a blood vessel or a cavity of the heart.

Surgical Terms Continued

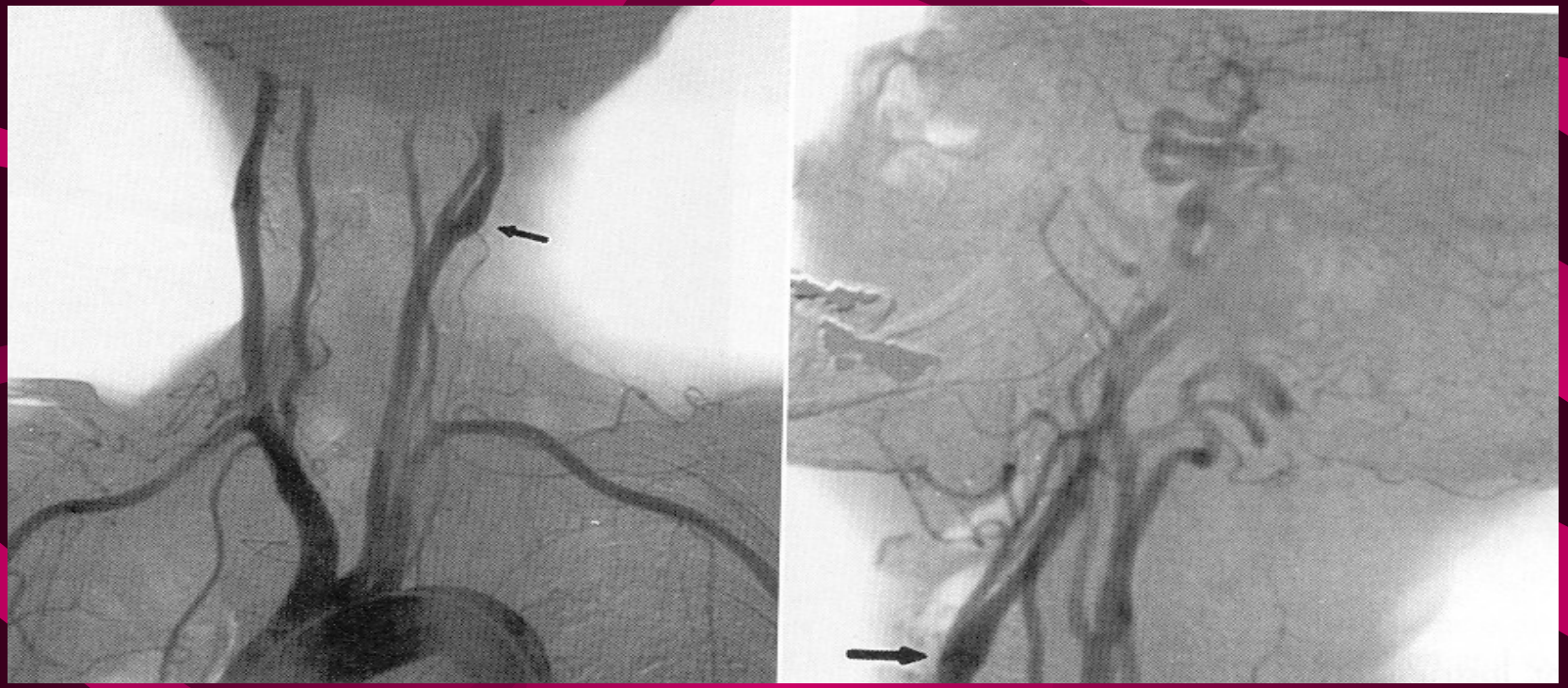
- **ANEURYSM--** Abnormal dilation (a widening) of an artery; due to a congenital defect or weakness in the wall of a vessel. May rupture and cause death.

- **CROSS CLAMP TIME**-- The period of time that an artery is clamped/occluded. During cross clamp time, there is no circulation to the part of the body below the clamp.

Surgical Terms Continued

- **ARTERIOGRAM/ ARTERIOGRAPHY--** Injection of radiopaque dye directly into an artery to obtain radiographs of the vessel and its tributaries. Used to detect blockages/ obstructions in the vessels.

ARTERIOGRAM/ ARTERIOGRAPHY



Most Frequent Reasons for Peripheral Vascular Surgery

CONDITION: Given the appropriate information

ACTION: Identify the reasons that a patient would need peripheral vascular surgery.

STANDARD: IAW Berry and Kohn's.

Frequent Reasons for Peripheral Vascular Surgery

- Plaque build- up in their arteries due to Arteriosclerosis disease.
- Trauma.
- Congenital defect in the artery.
- The purpose for this type of surgery is to restore circulation to the part of the body that the particular artery feeds.

Supplies, Equipment and Medications Used in Peripheral Vascular Surgery

CONDITION: Given the appropriate information

ACTION: Recognize the supplies, equipment and medications used in peripheral vascular surgery

STANDARD: IAW Berry and Kohn's.

Instruments Sets

- **MAJOR BASIC SET--** Instruments to open and close the abdominal cavity.
- **MAJOR VASCULAR SET--** Contains clamps and instruments for cases in the abdomen (AAA,AFB, aorta iliac etc.).

Instruments Sets

- **MINOR VASCULAR SET--** Smaller/shorter clamps for procedures done on the extremities or in small wounds (carotid endarterectomies, femoral popliteal bypass, etc.).

- Other special instruments may be used for specific procedures based on surgeon requests.

Equipment

DOPPLER

- Ultrasonic instrument.
- Used to hear the pulse when it cannot be palpated (felt).
- Provides assessment of blood flow in the vessel.
- Must be used with ultrasonic gel.

Equipment

DOPPLER

Supplies

- **Synthetic grafts**-- tubular conduits used to bypass or replace damaged vessels.
  - Made of a variety of materials, including:
  - Knitted polyester.
  - Woven polyester.
  - Polytehraflourethylene (PTFE) (Gortex).

Supplies Continued

- May be straight or bifurcated.
- May be smooth or accordion pleated.
- Some types may need to be pre-clotted (soaked in the patients own blood).
- Come in a variety of sizes-- small for small vessels and large for large vessels such as the aorta.

Supplies Continued

- **Prosthetic patch material**-- small pieces of graft material used to repair holes/defects in vessels or to strengthen suture.
- **Vessel Loops**.
  - Commercially prepared “loops” that resemble a severed rubber band.
  - Used to retract arteries and veins.

Supplies Continued

- **Rummel tourniquet**
  - Small (about 3’) pieces of catheters slid over an umbilical tape.
  - Used to occlude lood flow in a blood vessel instead of using a vascular clamp.

Supplies Continued

- **Embolectomy catheters**.
  - Catheter with a small inflatable balloon on the end.
  - Used to remove a blood clot from a blood vessel.
  - It is inserted above the clot, advanced beyond the clot, the balloon is inflated, and the catheter is pulled out of the vessel which removes the clot.

Supplies Continued

- **Vascular suture**
  - Most are made of synthetic, non absorbable materials such as Dacron, polyester, or polyporpylene.
  - Strong and passes through vessel walls and grafts easily with minimal trauma.
  - May be single or double armed (have a needle on both ends).
  - Have needles of various sizes and are available in sizes from 0 to 8-0.

Drugs and Solutions for Peripheral Vascular Surgery

- Heparin sodium
  - An anticoagulant.
  - May be used to irrigate the lumen of blood vessels during anastomosis to keep blood from clotting during surgery.
  - May be injected to thin (anticoagulate) the patient's blood.

Drugs and Solutions Continued

- Protamine sulfate
  - Reserves the action of heparin.
  - Dosage is calculated according to amount of heparin given.

- Papaverine-- to prevent vasospasm.

Drugs and Solutions continued

- Hemostatic agents including:
  - Gelfoam.
  - Thrombin.
  - Surgicel.
  - Avitene.

- Antibiotic irrigation.

Equipment and Procedures Associated with Vascular Surgery

CONDITION: Given the appropriate information

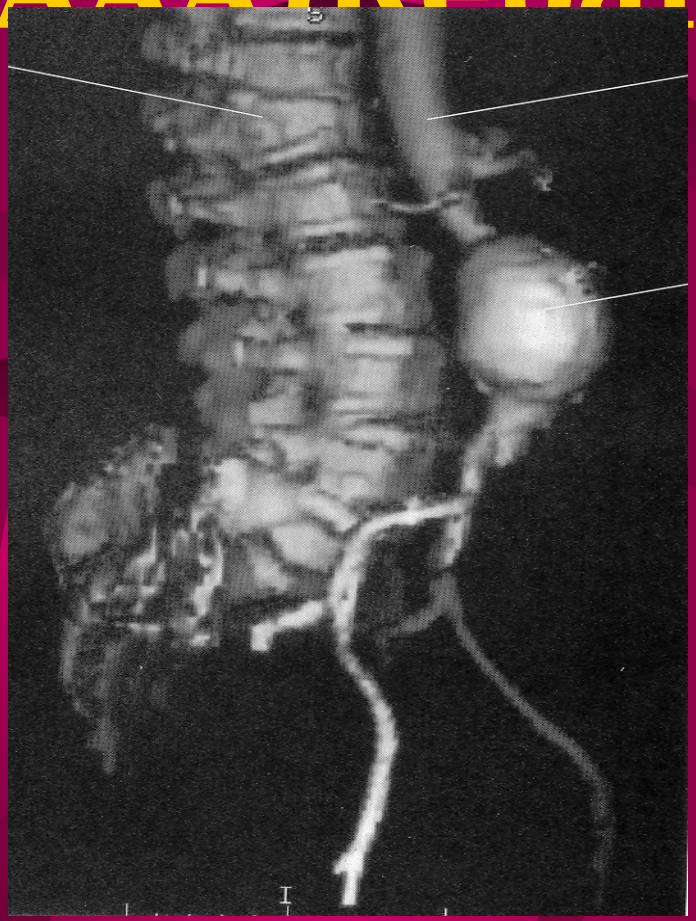
ACTION: Identify the equipment and procedures associated with vascular surgery

STANDARD: IAW Fuller.

Equipment and Procedures Continued

- **ABDOMINAL AORTIC ANEURYSM (AAA)Repair--** Removal of an abdominal aortic aneurysm and insertion of a synthetic straight or bifurcated graft.
- **CARTOID ENDARTERECTOMY--** Removal of atherosclerotic plaque from an obstructed carotid artery.

ABDOMINAL AORTIC ANEURYSM (AAA)Repair



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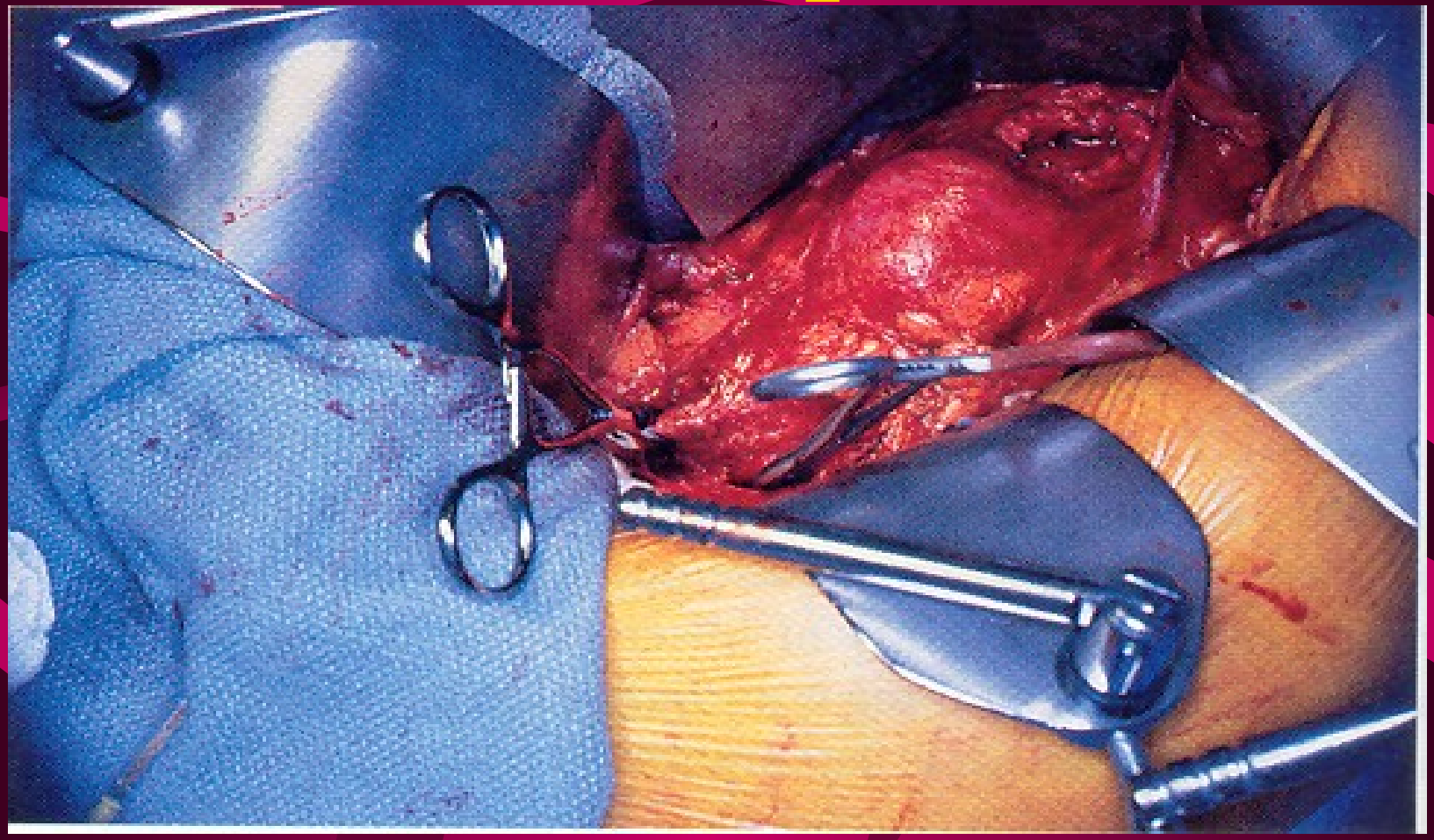

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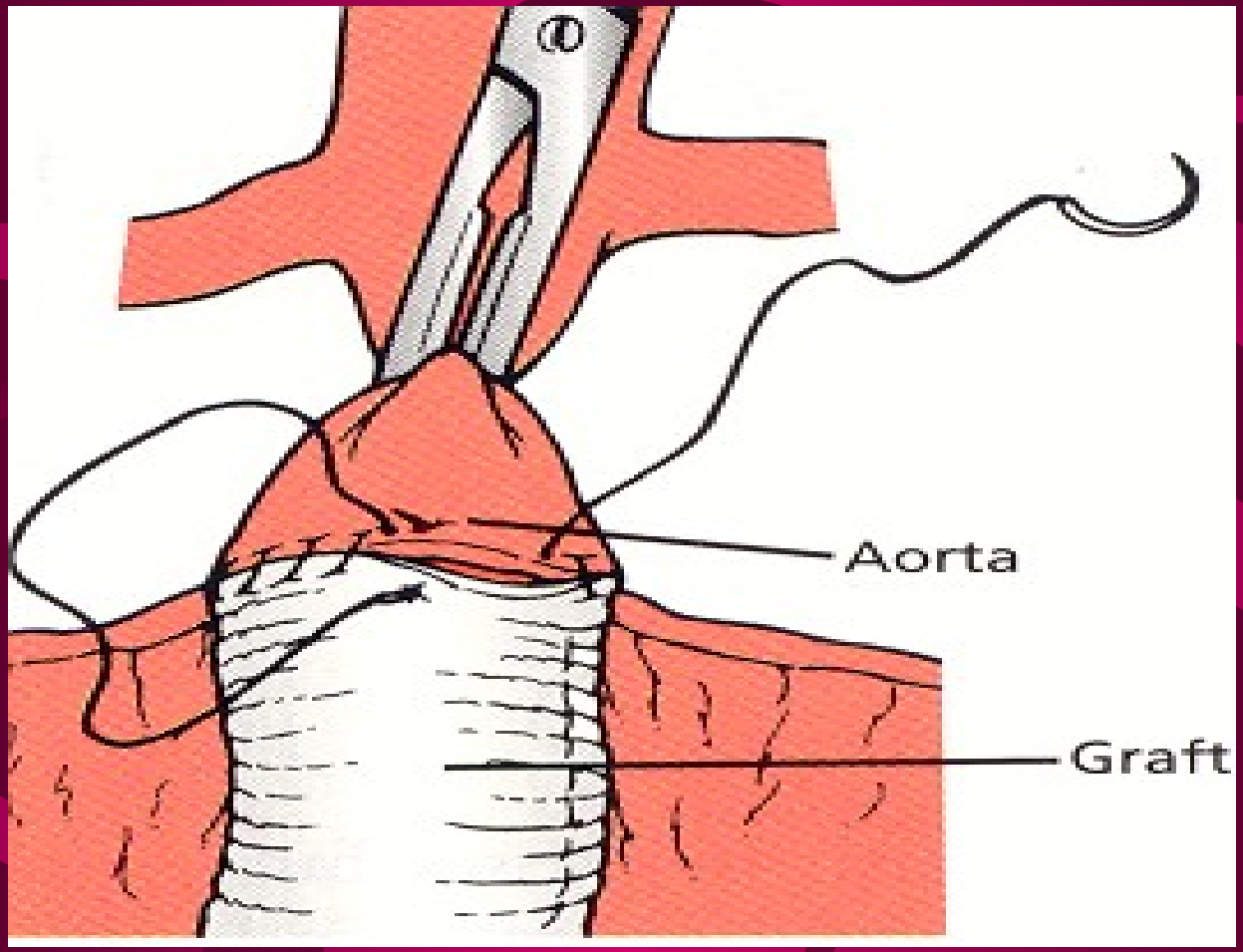

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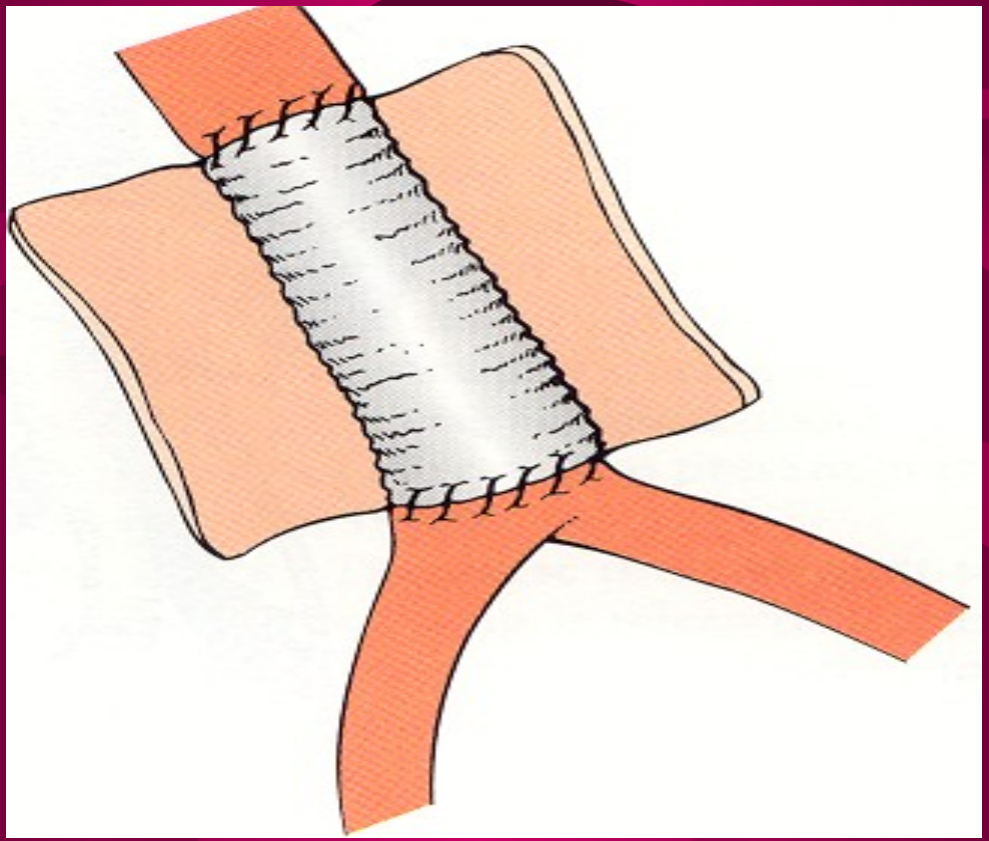

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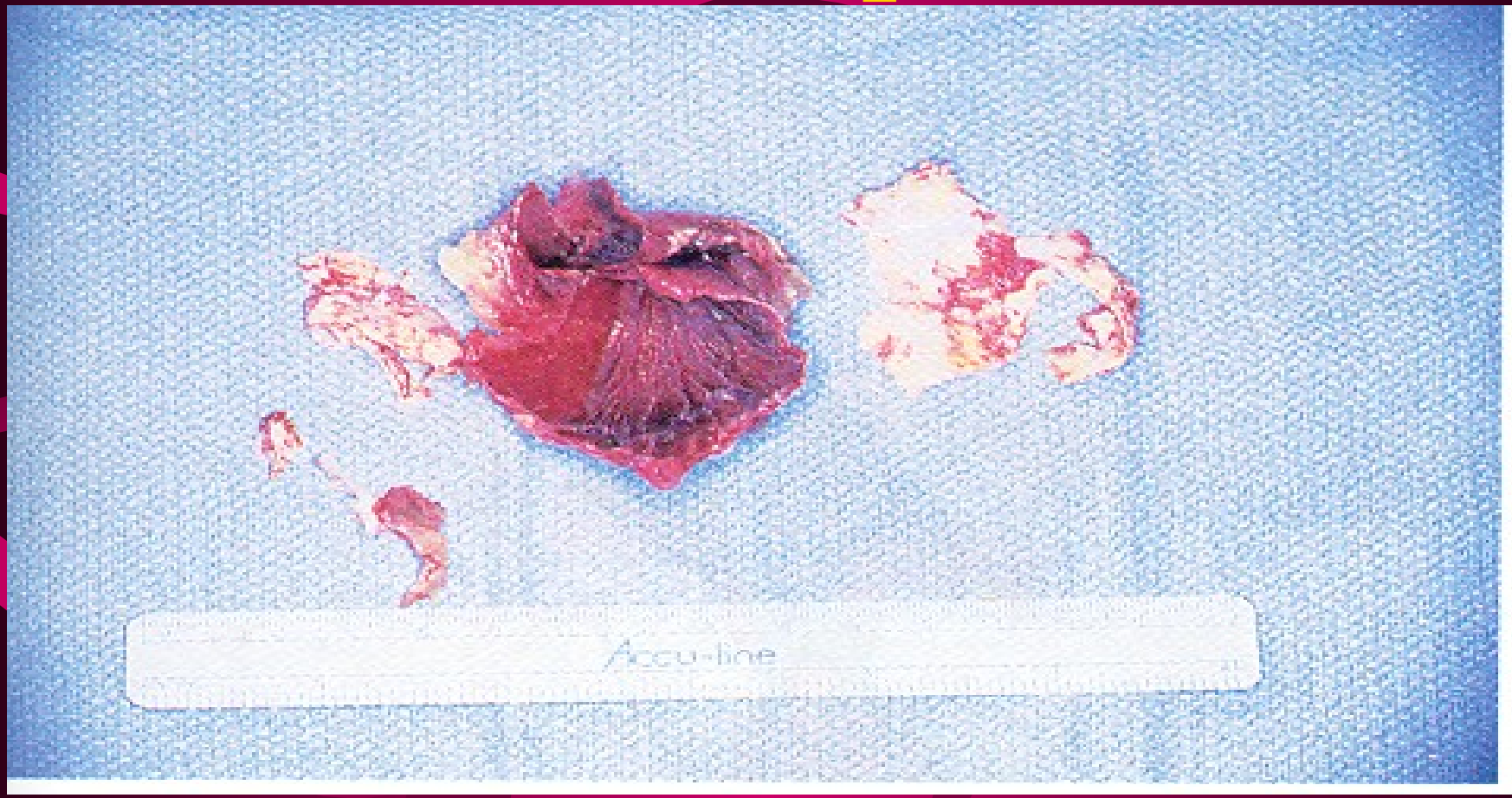
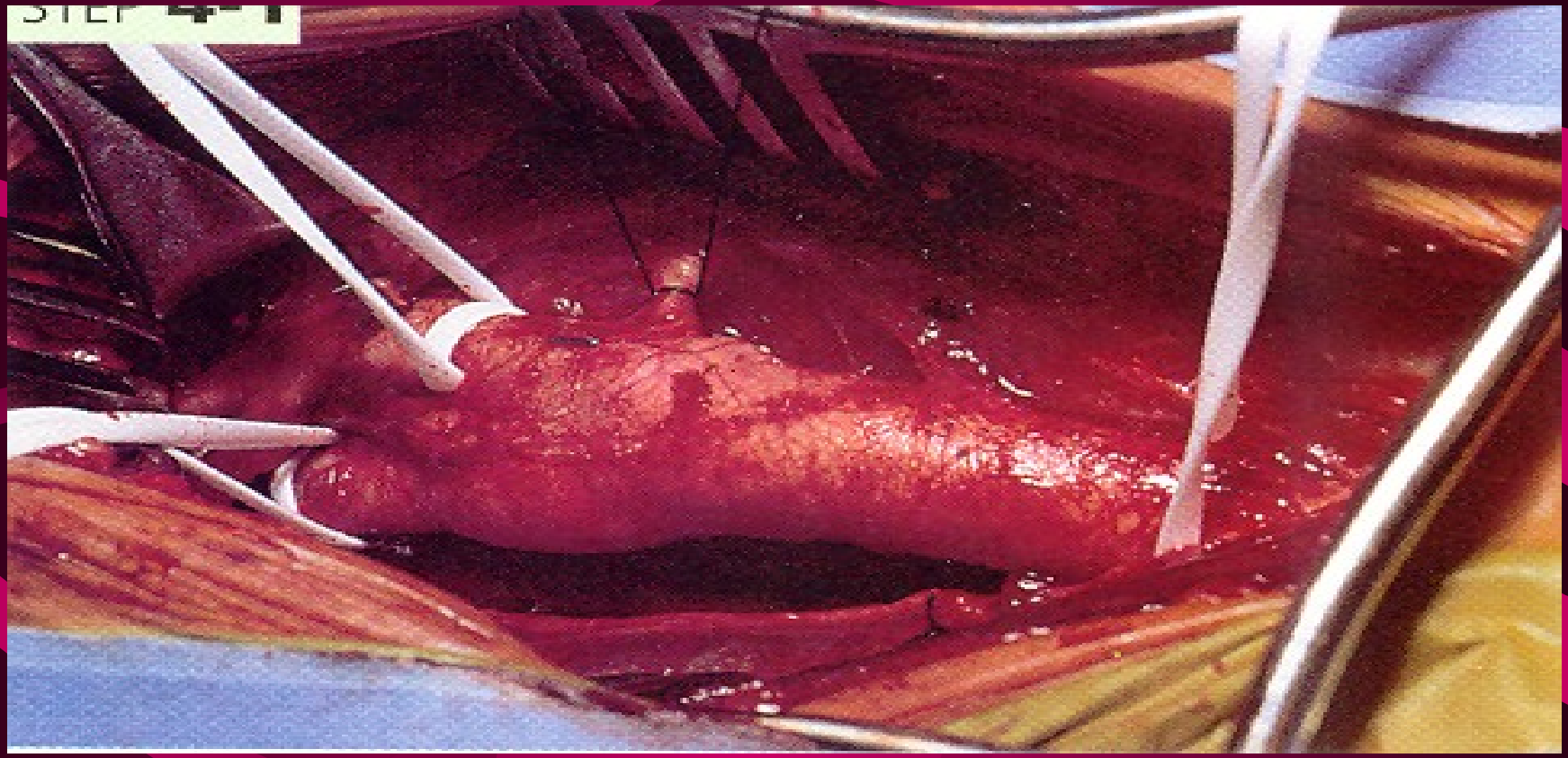


CARTOID ENDARTERECTOMY

CARTOID ENDARTERECTOMY



CARTOID ENDARTERECTOMY

Equipment and Procedures Continued

- **FEMORAL POPITEAL BYPASS**-- Implantation of an artificial (straight synthetic graft) or autogenous (saphenous vein) graft into the femoral and popiteal arteries for treatment of arteriosclerotic disease of the femoral artery.

- **AORTA- FEMORAL BYPASS**--Implantation of a synthetic bifurcated graft from the aorta to the femoral arteries to bypass sections occluded by atherosclerotic plaque.

Equipment and procedures Continued

- **AORTA ILIAC BYPASS**-- Implantation of a synthetic bifurcated graft from the aorta to the iliac arteries to bypass sections occluded by atherosclerotic plaque.
- **VEIN STRIPPING**-- Surgical removal of the saphenous vein and it’s branches to treat varicose veins of the leg(s) which relieves pain and prevents ulceration and/or bleeding.

Potential Complications of Peripheral Vascular Surgery

CONDITION: Given the appropriate information

ACTION: Identify the potential complications of peripheral vascular surgery

STANDARD: IAW Berry and Kohn's.

Potential Complications Continued

- **HEMORRHAGE**-- Large amounts of blood lost in a short period of time.
- **HYPOTHERMIA**-- Body gets cold and responds by constricting blood vessels.
- **HYPERTHERMIA**-- Body gets hot; may indicate infection process or sepsis.
- Blood pressure change.
- Loss of distal pulse due to reduced/absent circulation. If not restored, could lead to amputation.

Potential Complications Continued

- Loss of distal pulse due to reduced/absent circulation. If not restored, could lead to amputation.

- Stroke caused by plaque or blood clot obstructing blood flow in the brain.
- All exposed bowel should be kept moist during the procedure. Any portion of bowel which becomes dried out could die.

Questions